Amendments to the Claims:

The following listing of claims replaces all prior versions and listings of claims, in the application.

Listing of Claims

1. (Currently Amended) An endoscope comprising:

a fiber optic waveguide that transmits an image from a distal end to a proximal end, the fiber optic waveguide extending through a rigid endoscope body having an outer diameter of less than 3 mm;

a lens positioned at the distal end of the fiber optic waveguide;

a handle attached to the endoscope body;

an imaging device within the handle and optically coupled to the proximal end of the fiber optic waveguide; and

a removable sheath extending about the endoscope body and including an illumination channel, the sheath being removably attached to the handle ~~and including an illumination channel~~ such that removal of the sheath from the handle leaves the endoscope body remaining attached to the handle.

2. (Original) The endoscope of claim 1 wherein the lens comprises a first lens element, a second lens element and an aperture stop.

3. (Previously Presented) The endoscope of claim 1 wherein the lens couples light at any position on a distal surface of the lens to a plurality of optical fibers of the fiber optic waveguide such that the numerical aperture of light entering each fiber from a position varies as a function of angle.

4. (Currently Amended) An endoscope comprising:

a fiber optic waveguide that is attached to a handle and that transmits an image, the waveguide having a diameter of less than 2 millimeters for insertion into a body;

an optical system coupled to a distal end of the waveguide;

a lens system in the handle that is optically coupled to a proximal end of the waveguide;

an imaging device in the handle that receives an image from the fiber optic waveguide; and

a disposable sheath extending ~~over~~ about the endoscope body, the sheath being removably attached to the handle such that removal of the sheath from the handle leaves the fiber optic waveguide attached to the handle.

5. (Previously Presented) The endoscope of claim 4 wherein the fiber optic waveguide comprises a plurality of optical fibers.

6. (Original) The endoscope of claim 5 wherein the waveguide has at least 3000 imaging fibers.

7. (Original) The endoscope of claim 6 wherein the optical lens at the distal end of the waveguide is an achromatic lens system including an aperture stop.

8. (Original) The endoscope of claim 7 wherein the numerical aperture of the lens system is balanced to the imaging fibers.

9. (Original) The endoscope of claim 4 wherein the disposable sheath has a window over the distal end.

10. (Original) The endoscope of claim 4 wherein the disposable sheath has a lens at the distal end.

11. (Original) The endoscope of claim 4 wherein the optical system is non-telecentric and includes a first lens element, a second lens element and an aperture stop.

12. (Presently Presented) The endoscope of claim 4 wherein the disposable sheath includes an optical waveguide that transmits light to the distal end of the endoscope.

13. (Original) The endoscope of claim 4 further comprising an annular illumination channel encircling the optical waveguide fiber for transmitting the light and the sheath having a single sealed outer tube.

14. (Original) The endoscope of claim 6 wherein the disposable sheath has a tube for passing a tool to the distal end of the endoscope.

15. (Original) The endoscope of claim 4 further comprising a working channel.

16. (Original) The endoscope of claim 4 wherein the sheath comprises an illumination fiber optic system coupled to a light source through a handle.

17. (Previously Presented) The endoscope of claim 12 wherein the optical waveguide comprises an illumination fiber extending through the sheath is coupled to a light source with a connector.

18. (Original) The endoscope of claim 4 wherein the imaging device is connected to an image processor.

19. (Currently Amended) An endoscope comprising:

a fiber optic waveguide having at least 3000 imaging optical fibers that transmit an image, the waveguide extending through a rigid endoscope body having a diameter of less than 3 millimeters;

an optical system coupled to a distal end of the waveguide;

a handle attached to the endoscope body;

a lens system within the handle and optically coupled to a proximal end of the waveguide;

an imaging device within the handle that receives an image through the lens system from the fiber optic waveguide; and

a removable sheath extending ~~over~~ about the endoscope body, the sheath being removably attached to the handle with a connector such that removal of the sheath from the handle leaves the endoscope body remaining attached to the handle.

20. (Previously Presented) The endoscope of claim 19 wherein the optical system comprises an achromatic lens.